

## ABSTRACT

This patent application provides a mini-ammonia plant design that is suitable for on-site ammonia production from natural gas feedstock. Its primary application is to supply ammonia to power plant selective catalytic reduction (SCR) facilities for  $\text{NO}_x$  abatement. The ideal plant size is less than 5 tons per day per train, but larger size plant can also be designed. In addition to the intended SCR applications, it can also be used in distributed nitrogen generation for industrial or agricultural applications. This mini-ammonia plant eliminates the need for importing ammonia or on-site manufacturing of ammonia from urea. Anhydrous ammonia is a toxic material, and its transportation to power plants located in urban areas is generally prohibited. The invention described in this patent allows the on-site production of small quantity of ammonia in an economical and energy efficient manner. It produces a pre-conditioned hot ammonia/air mixture or hot ammonia gas stream suitable for use in SCR applications.